

NEW TETRAPLOID SOLANUM SPECIES
FROM BOLIVIA:

S. HOOPESII AND S. UGENTII

J.G. Hawkes and K.A. Okada

University of Birmingham, U.K.
I.N.T.A., Castelar, Argentina

Although Bolivia has been very well explored for wild potatoes, recent expeditions have revealed the presence of two more hitherto unknown species. These were discovered during the 1986 and 1987 US-funded expeditions by Dr. R. Hoopes, Dr. K.A. Okada, Israel Aviles, Jaime Herbas and Ricardo La Fuente. We thank Dr. Hanneman, Director of the Potato Introduction Station at Sturgeon Bay, Wisconsin for obtaining the funding for these expeditions and for growing the materials on which the descriptions are based. We are grateful also to Dr. R. Hoopes for permission to publish the descriptions and to him and Dr. D. Ugent for allowing us to name the species after them. We thank J.P. Hjerting of the Copenhagen Botanic Gardens for cooperation in making the descriptions, and Mr. Mr. D. Costa of Birmingham University for checking the Latin concordances.

S. hoopesii Hawkes & Okada, sp. nov. (Series Tuberosa)

Caulis usque ad 50 cm altus vel altior, infra ramosissimus, angustissime alatus, pilis brevibus, appressis sparsissimis tectus.

Folium 10-15(-19) cm longum x 5-7(-13) cm latum, (2-)3(-4) -jugatum, foliolis interjectis 0-2(-5) -jugatis minutissimis sessilibus, rotundis usque ad ovata; foliola lateralia 3-4 cm longa x 1.5-2.5 cm lata, late ovata usque ad ovato-lanceolata, foliolorum lateralium duo juga summa magnitudine fere aequalia, infimum minutissimum, apice acuto ad leviter acuminatum atque basi rotunda usque ad truncatam; petioluli 3-7(-10) mm longi; foliolum terminale quam lateralia plerumque latius, apice acuminato atque basi rotunda usque ad truncatam; foliorum superficies superior pilis aliquantum frequentibus paulo brevibus appressis oblecta, infra minus frequentibus.

Inflorescentia generaliter multiflora; pedunculus supra furcatus (nonnumquam bis), pars inferior brevis, 3-4(-7) cm longa, furcae 5-14 cm longae usque ad pedicellum ultimum, pedicelli 20-30 mm longi, articulati in vel prope medium; pedunculus et pedicelli pilis brevissimis sparsissimis appressis tecti, supra leviter frequentioribus.

Calyx atropurpureus, 6-7 mm longus, acuminibus 1-2 mm, pilis modice densis brevissimis appressis tectus.

Corolla rotata, speciosissima vivide atropurpurea, 20-30 mm diametro, lobis rotundatis vel humeris similibus, 7-10 mm longis, acumine 2.5-3 mm incluso.

Antherae 7 mm longae, manifeste decrescentes supra; filamenta 1-1.5 mm longa.

Stylus circa 10-11 mm longus, exsertus 3(-4) mm supra columnam antherarum, supra expansus in stigma breviter capitatum.

Baccae sphaericae, diametro ignoto

Stem about 50 cm or more, much branched below, 3-5 mm diam, very narrowly winged, with very sparse short appressed hairs.

Leaf 10-15(-19) cm long x 5-7 (-13) cm broad, (2-)3(-4)-jugate with 0-2(-5) pairs of very small sessile rotund to ovate interjected leaflets; lateral leaflets 3-4 cm long x 1.5-2.5 cm broad, broad ovate to ovate-lanceolate, the two upper pairs + the same size, the lowest very small, with acute to slightly acuminate apex and rounded to truncate base; petiolules 3-7(-10) mm long; terminal leaflet generally broader than the laterals, with acuminate apex and rounded to truncate base; upper leaf surface covered with rather frequent fairly short appressed hairs, less frequent below.

Inflorescence generally many-flowered; peduncle forked above (sometimes twice), the lower part short, 3-4(-7) cm long, the forks from 5 to 14 cm long to the last pedicel; pedicels 20-30 mm long, articulated at or near the centre; peduncle and pedicels provided with very sparse very short appressed hairs, slightly more frequent above.

Calyx dark purple, 6 - 7 mm long, with 1-2 mm acumens, provided with medium dense very short appressed hairs.

Corolla rotate, very showy, deep rich purple, 20-30 mm diam; lobes rounded or shouldered, 7-10 mm long including the 2.5-3 mm acumen.

Anthers 7 mm long, clearly tapering above; filaments 1-1.5 mm long.

Style about 10-11 mm long, exserted 3(-4) mm above the anther column, expanded above into the shortly capitate stigma.

Berry spherical, diameter unknown.

Chromosome number: $2n = 48$.

TYPE: BOLIVIA, dept. Chuquisaca, prov. Azurduy, 26 km from Abra Kasa (85 km from Azurduy) on the road to Tarabuco, 5 km before Cruz Kasa. Alt. 3200 m. 1 April, 1986. Growing by a stone wall. Hoopes, Aviles and Okada 160 (K - HOLOTYPE).

BOLIVIA, dept. Chuquisaca, prov. Azurduy, 11 km from Abra Kasa on the way to Tarabuco, 20 km before Cruz Kasa. Alt. 2500 m 1 April. 1986. Roadside under bushes. Hoopes, Avilés and Okada 157 (K-PARATYPE).

Description made from 160 and 157.

This species is named in honour of Dr. R.W. Hoopes, the leader of both expeditions. It is chiefly distinguished by its rather sparse short pubescence, poorly dissected leaves with 0 - few small interjected leaflets, 3-jugate leaves with the lowest pair much smaller than the uppermost two, very long peduncle branches, large showy corolla with rounded shoulders, and style expanded above into a short capitate stigma.

The tetraploid chromosome number is noteworthy for a species in Series Tuberosa.

S. ugentii Hawkes & Okada sp. nov. (Series Tuberosa)

Caulis usque ad 50 cm altus vel altior, ramosissimus, ad 6 mm diam, angustissime alatus, pilis frequentibus appressis.

Folium 14-19 cm longum x 8-13 cm latum, 5-6(-7)- jugatum; foliola lateralia 3-4 x 1.3-2(-2.5) cm, ovata, apice acuta atque basi cuneata saepe obliqua; petioluli 5-15(-25) mm longi; foliolium terminale leviter latius atque interdum brevius quam foliola lateralia; foliola interjecta frequentissima, usque ad circa 20 juga, saepe acroscopica, basiscopica et semi-basiscopica, nonnumquam ad 30 mm longa; pubescentia pilorum frequentium appressorum medio-longorum infra breviorum et solum in venis.

Inflorescentia aliquantum multiflora; pedunculus supra furcatus, infra furcam 3-6 cm longus, supra furcam 3-5(-8)cm longus; pedicelli 20-35 mm longi articulati in medio vel supra; pubescentia pilorum brevium appressorum a sparsis ad frequentes variantium in ramis omnibus inflorescentibus.

Calyx atropurpureus, 7-8 mm longus, acuminibus 2-3 mm atque pilis frequentibus appressis brevibus.

Corolla rotata, vivide atropurpurea, 25-30 mm diametro; lobis circa 7 mm longis, 3 mm acuminibus inclusis.

Antherae 5-6 mm longae; filamenta 1-2 mm longa.

Stylus 10 mm longus, exsertus circa 4 mm supra columnam antherarum, supra expansus in stigma grande capitatum.

Baccae sphaericae, viridae, sine maculis albis.

Stem up to 50 cm or more, much branched, up to 6 mm diam, very narrowly winged, with frequent appressed hairs.

Leaf 14-19 cm long x 8-13 cm broad, 5-6(-7)-jugate; lateral leaflets 3-4 x 1.3-2(-2.5) cm, ovate, with acute apex and cuneate often oblique base; petiolules 5-15 (-25) mm long; terminal slightly broader and sometimes shorter than the laterals; interjected leaflets very frequent, often acroscopic, basicopic and semi-basicopic, up to about 20 pairs, sometimes up to 30 mm long; pubescence of frequent medium-lengthed appressed hairs, shorter below and on veins only.

Inflorescence with rather frequent flowers, forked above, 3-6 cm below the fork, 3-5(-8) cm long above the fork; pedicels 20-35 mm long with articulation at or above the centre; pubescence of short appressed hairs varying from sparse to frequent on all inflorescence branches.

Calyx dark purple, 7-8 mm long with 2-3 mm acumens and frequent appressed short hairs.

Corolla deep rich purple, rotate, 25-30 mm diameter; lobes about 7 mm long including the 3 mm acumens.

Anthers 5-6 mm long; filaments 1-2 mm long.

Style 10 mm long, exserted about 4 mm above the anther column, expanded above into a large capitate stigma.

Berries spherical, green, without white spots.

Chromosome number: $2n = 48$.

TYPE: BOLIVIA, dept. Chuquisaca, prov. Azurduy, road from Tarabuco to Azurduy, 30 km beyond the Torre Pampa junction and 20 km before Cruz Kasa. Alt. 3730 m. 6 April 1987. At the base of cliffs 200 m above the road. Hoopes, Okada, Herbas and La Fuente 288 (K - HOLOTYPE).

PARATYPE: BOLIVIA, dept. Chuquisaca, prov. Azurduy, about 22 km beyond Torre Pampa junction on the way to Azurduy. Alt. 3730 m. 6 April 1987. Base of cliff. Hoopes, Okada, Herbas and La Fuente 290 (K-PARATYPE).

This species is named in honour of Professor Donald Ugent, who has collected potatoes in Mexico, Peru and Bolivia and who has worked for many years on the taxonomy of this group of plants.

The main distinguishing features of this species are the highly dissected leaves with long petiolules and very many interjected leaflets which attain a large size, often with acroscopic, basiscopic and semi-basiscopic leaflets; also noteworthy are the peduncles that are generally short below the fork and longer above, the rotate deep rich purple corolla, the large capitate stigma and the tetraploid chromosome number.

These two species can be easily distinguished by the leaf, which in *S. hoopesii* is typically 3-jugate with very few pairs of interjected leaflets, whilst *S. ugentii* has a highly dissected, 5-7-jugate leaf, with very frequent interjected leaflets, up to 20 pairs. They both differ from the tetraploid *S. sucrense* in the rotate corolla with short acumens, whilst that of *S. sucrense* is rotate-pentagonal with well-marked acumens (5 mm long).